standard, post-secondary institutions and departments doing advanced work might be recognised as providing part of the courses for a distinct technological degree which the University would establish.

By the institution of this new faculty and board, on which the local industries would be represented, it has been sought to meet "the strong feeling of distrust entertained towards the University and centralised control by certain industrial and commercial interests in South Wales." In relation to the University this new faculty and board "should have all reasonable liberty to bring their special knowledge and experience to bear on what will often be local problems, but they cannot claim to be given a greater degree of independence than that enjoyed by a constituent college. It is conceivable, for example, that individuals or associations may desire to place large sums of money at the disposal of the board, and that by these means, or in other ways, the faculty and board of technology might be able to give a bias to the general development of the colleges or to the character of courses for degrees which would be contrary to the general principles upon which our recommendations are framed and inconsistent with any real control on the part of the University or the colleges." The Commissioners utter this warning:—

> But there is a serious danger lest short views should be taken of the true function of the university, and of the nature of the contributions to the common good which it is most fitted to make. Great advances in the application of science to industry have often been made possible by the discoveries of students who had no such object in view, but were impelled simply by the desire to extend the bounds of knowledge and solve some problem in the realm of pure science.

With regard to the development of medical studies it is recommended that the proposed National School of Medicine should be organised as an independent constituent college of the University governed by a council and senate of its own. Towards the erection of the necessary buildings the sum of 90,000*l*. has been promised by a private donor, and the gift of a further sum of 30,000*l*. has recently been announced for the endowment of a chair of preventive medicine.

On the financial side it is recognised that, in order to carry out all the legitimate developments of the work of the University and its colleges, an additional annual income of about 100,000*l*. will be necessary, to be raised by increased local subscriptions and private gifts and by a proportionate increase of the Government grant; and it is held that increased remuneration and provision for superannuation for the teaching staffs of the colleges constitute a foremost claim on such increased revenue.

The principles and recommendations put forward by the Commissioners afford an excellent opportunity for renewed effort, and if the people of Wales will rise to the height of their opportunity, higher education in science and technology is assured of a bright future in the Principality.

ANATOMICAL NOMENCLATURE.

At a recent meeting of the Anatomical Society of Great Britain and Ireland steps were taken to clear up the chaos which has overtaken the nomenclature employed by human and vertebrate anatomists in this country. In 1889 the Anatomical Society of Germany appointed a commission to prepare a revised nomenclature—one which was finally adopted by the society when it met at Basle in 1895, and hence known as the "Basle Nomina Anatomica," usually spoken of as the B.N.A. nomenclature. The majority of British anatomists have never favoured or accepted the B.N.A. nomenclature, not because of its origin, but because of its intrinsic defects. The French and Italian anatomists also refused to adopt it. Unfortunately, the Basle terminology has been adopted in our leading English text-books on human anatomy, while the majority of teachers have continued to use the terminology which is native to Britain. The result has been to introduce a state of chaos bewildering to the pupil as well as to the teacher.

The resolution passed unanimously by the Anatomical Society at its meeting in King's College on March 1 is a definite pronouncement against the adoption of the Basle nomenclature by British anatomists. The terms of the resolution were as follows:—

> This society sees no reason for departing from the use of the old nomenclature as the recognised medium of description for employment in anatomical text-books and departments or by medical men in general. On the other hand, it thinks there are very good reasons to be urged against the adoption of any other nomenclature for this purpose.

NOTES.

The Bakerian lecture of the Royal Society will be delivered on Thursday, April 25, by Sir Charles Parsons, on "Experiments on the Production of Diamond." Sir Charles Parsons will also describe his experiments on the formation of the diamond at the eighth annual May lecture which he is to give before the Institute of Metals on May 2. In view of the special character of the occasion, the council of the Institute of Metals has decided to make this an open meeting. Persons desiring to be present should apply —enclosing a stamped and addressed envelope—for cards of invitation to Mr. G. Shaw Scott, 36 Victoria Street, S.W.1.

The council of the Royal Society has appointed a committee to investigate and report on the possibility of obtaining and replacing food materials and other necessaries by the utilisation of natural products not hitherto generally employed for such purposes. Suggestions as to such products and the means of organising their collection should be addressed to the secretary of the Natural Products Committee, Royal Society, Burlington House, Piccadilly, London, W.1.

The secretary of the Decimal Association informs us that at the annual meeting of the Associated Chambers of Commerce held on April 9 and 10 a motion was adopted urging the Government to pass into law the Decimal Coinage Bill prepared by the Executive Council of the Associated Chambers of Commerce in conjunction with the Institute of Bankers and the Decimal Association. It is understood that Lord Southwark will introduce the Bill into Parliament at the earliest possible moment.

THE possibility of an aerial mail has often been commented upon in these columns, and it is very interesting to note that a company has actually been formed in Norway for the purpose of establishing a mail service between Aberdeen and Stavanger. This trip was made just before war broke out by Capt. Tryggve Grau in about five hours' flying, and it is estimated that the mail services will reduce this to four and a half hours with modern machines. An extension of the system to Christiania and Copenhagen is contemplated, and it is hoped that letters leaving Aberdeen in the morning would be delivered in both these cities in the afternoon. The company has already a share capital of 150,000*l*., and a representative is now in England negotiating with the Government for a solution of the problem. The value of such a mail service would be very great at a time when the oversea service is so seriously hampered by the German submarine campaign, and the satisfactory establishment of the contemplated Norwegian service would undoubtedly soon lead to a general use of the aeroplane for rapid international communication.

WE learn from *Science* that by joint action the United States Secretaries of War and the Navy, with the approval of the Council of National Defence, have authorised and approved the organisation, through the U.S. National Research Council, of a Research Information Committee in Washington with branch committees in Paris and London, which are intended to work in close co-operation with the officers of the Military and Naval Intelligence, and the function of which shall be the securing, classifying, and disseminating of scientific, technical, and industrial research information, especially relating to war problems, and the interchange of such information between the Allies in Europe and the United States.

FOR the duration of the war and one year afterwards (according to *L'Economista d'Italia* for April 2) there has been established at the Italian Ministry of Commerce and Labour an office entitled "Office of the Committee for Chemical Industries," which will fulfil the following functions:—It will (1) act as the executive body for all the deliberations of the Committee for the Chemical Industries; (2) compile statistics bearing on the Italian production of chemical and pharmaceutical supplies, especially in regard to raw materials; (3) collect information relative to the progress of industrial chemistry abroad; (4) publish information of interest to the Italian chemical industry; (5) investigate any new measures or modifications of measures proposed in Italy or abroad of interest to industrial chemistry; (6) take any necessary preliminary steps to get Parliament to adopt the best measures to secure the most effective collaboration between science and the chemical industry; (7) take any other steps necessary to the interests of the chemical and pharmaceutical industry of the country.

AN account of the outbreak of pneumonic plague in China is given by a correspondent in the *Times* of April 12. The epidemic, which commenced last December, has a firm hold on a part of the Mongolian plateau and in the high-lying part of North Shansi, but so far has not spread to the populous centres in North China. It was not until pressure had been brought to bear upon the Chinese authorities that precautionary measures were taken; these consist in quarantining those who come from infected districts, and the immediate isolation of the sick and their treatment by masked attendants. The course of the epidemic is traced, and it is surmised that marmots have been the source of infection. The mortality has been considerable, but exact figures are lacking; in the Suiynan district 1500 deaths were reported up to the beginning of February.

THE first meeting of the Inter-Allied Scientific Food Commission was, we learn from the *British Medical Journal*, held in Paris on March 25 and the following days. At the first sitting the Commission was received by M. Boret, the French Minister of Agriculture and Food. In his opening address M. Boret pointed out that the object of the conference is to study the best means of utilising the very small food resources at the disposal of the Allies so as to effect an equitable distribution of the available food supplies among the Allies, having proper regard to the facts of physiology and political economy. The Commission agreed to establish a permanent central secretariat in Paris, M. Alquier being appointed secretary. In addition to the central secretariat it was agreed that a secretary to the Commission should be appointed in each of the Allied countries. The Commission considered important questions relating to the minimum food requirements of man, and to the production and distribution of food supplies. The Commission will reassemble at intervals, in Paris or in some other of the Allied capitals. It will probably meet next at Rome towards the end of this month. The formation of the Commission was decided upon at an inter-Allied conference held in Paris last November, when it was resolved that the Commission should consist of two delegates each from Great Britain, France, Italy, and America. The delegates appointed from the various countries were:—Great Britain: Prof. E. H. Starling and Prof. T. B. Wood; France: Prof. Ch. Richet and Prof. E. Gley; Italy: Prof. Bottazzi and Prof. Pagliani; America: Prof. R. H. Chittenden and Prof. Graham Lusk. The Commission is empowered to make any propositions to the Allied Governments which it thinks fit.

THE President of the Local Government Board recently appointed a Committee, under the chairmanship of Sir John Tudor Walters, "to consider questions on building construction in connection with the provision of dwellings for the working class in England and Wales, and to report upon methods to secure economy and despatch in the provision of such dwellings." The Committee has approached the Department of Scientific and Industrial Research with the request that the Department would make arrangements to undertake any research work which might be found desirable to assist in the prosecution of these inquiries. The Advisory Council for Scientific and Industrial Research accordingly appointed a Committee consisting of Mr. Raymond Unwin (chairman), Mr. R. J. Allison (on the nomination of the First Commissioner of H.M. Office of Works), Mr. P. A. Crosthwaite (on the nomination of the Local Government Board), Mr. W. H. Humphreys, and Mr. Seebohm Rowntree, with Mr. E. Leonard, of the Local Government Board, as secretary. In order that the services of suitable technical advisers should be at the disposal of this Committee, Mr. Tabor, an engineer of the London County Council, has been appointed by the Department technical officer to the Committee, while, with the concurrence of the Board of Education, the services of Mr. Hugh Davies, H.M.I., have also been made available. The terms of reference to the Committee are as follows:—"To make arrangements for carrying out researches on building construction instituted by the Department at the instance of the Local Government Board Committee or otherwise, to be responsible under the council for the direction of such researches, and to deal with such other matters as may be referred to them from time to time by the council."

MR. MACPHERSON, Parliamentary Under-Secretary for War, in a written reply to Mr. Lynch, who asked in the House of Commons whether it is possible to construct a gun capable of throwing a projectile eighty miles or more, and, if so, whether steps have been taken in consequence, has stated that it is possible to construct such a gun, and that the necessary steps have been taken.

REPLYING to a question as to the ages of the small-pox patients now being treated in the hospitals of the Metropolitan Asylums Board, and the vaccinal condition of each patient, Mr. Hayes Fisher, President of the Local Government Board, has given the House of Commons the following information:—The condition as to vaccination of the thirty-four cases in question at the time of exposure to infection was as follows:—Under five years of age, four cases, all unvaccinated. Between five and fifteen years, ten cases, all unvaccinated. Between fifteen and twenty-five years, four cases, all unvaccinated. Between twenty-five and thirty-five years, six cases, all vaccinated, none revaccinated. Above thirty-five years of age, ten cases, all vaccinated, of which two are stated to have been re-vaccinated several (more than twenty) years previously. Of the total thirty-four cases, fifteen were vaccinated or revaccinated after exposure to infection.

Engineering for April 12 comments upon the memorandum issued recently from which it appears that the net cost of the Army in 1916–17 was 587,796,567*l.*, of which enormous total the sum of 285*l.* was appropriated to inventors. The disproportion recalls Falstaff's famous reckoning, where one poor halfpennyworth of bread figured as an item amongst an intolerable deal of sack. The remark has often been heard that this is an engineers' war, but the above account would convey the impression that the authorities are as reluctant as ever to encourage the application of original thought to the improvement of our material of war. Fortunately, engineers and scientific men have actively exerted their patriotic efforts without consideration of personal profit, and hence, whilst the account may state truly the amount paid for ideas, it affords no criterion for estimating the actual value of the services rendered by inventors, which have in many cases been given gratuitously.

BY the death at the age of seventy-three of Prof. Paul Vidal de la Blache France has lost her foremost geographer. For many years Prof. de la Blache held the chair of geography at the Sorbonne, where his lectures had attracted students from many countries. He was one of the first to introduce causal treatment into geography, and, emphasising always its human side, to raise it to the rank of a scientific study. He was the author of numerous geographical works, and for several years had been one of the editors of the *Annales de Géographie*. Of his many works the best known is probably his "Atlas général Vidal de la Blache," which appeared in 1890 and succeeding years. This atlas, which contains about 137 maps, including fifty-two historical maps and many insets, is the standard French atlas. Many of the maps are marked by great ingenuity of conception, and several are unique to this atlas. Prof. de la Blache also showed much interest in historical geography, and among his earlier works was one on Marco Polo. His last work, published in 1917, entitled "France de l'Est," discussed the geographical basis of the history of Alsace-Lorraine. Prof. de la Blache was a member of the French Institute.

MR. GEORGE MITCHELL SEABROKE, who died suddenly on April 1—his seventieth birthday—was educated at Rugby School in the house of Mr. J. M. (now Canon) Wilson, under the headmastership of Dr. Temple. No doubt he owed much to Canon Wilson's inspiring teaching, both of science and mathematics, as well as a personal friendship which lasted his whole life. On leaving school he was articled to Mr. M. H. Bloxam, solicitor and clerk to the magistrates of the Rugby Petty Sessional Division, to whose practice and clerkship he succeeded in 1871. Mr. Seabroke's scientific and mechanical tastes showed themselves in early youth. There was, and probably is still, a model steam engine which he constructed in the 'fifties, preserved in the cabinet of physical apparatus in Rugby School. At the same time he was interested in astronomy, and requiring an instrument more powerful than a 3¼-in. refractor, he invented and constructed a machine for grinding and polishing glass specula. This enabled him to construct a 9-in. reflecting telescope, still preserved as a supplementary instrument in the Temple Observatory, and chiefly used for spectroscopic work. Of the Temple Observatory of Rugby School, founded by the energy of Canon Wilson in 1871, Mr. Seabroke was the first curator, a position which he held until his death. In 1870 he was elected a fellow of the Royal Astronomical Society, and contributed to the publications of the society papers on spectroscopic observations on the motion of the fixed stars in the line of sight and on the micrometric measure of double stars. He took an active part in the formation of the British Astronomical Association. He was elected on the first council, was president 1910–12, director of the double-star section 1902–15, and of the Saturn section 1898–1911. This is not the place to describe Mr. Seabroke's public work for the town of Rugby during the last forty-five years, but it may be mentioned that he was an active commander of the volunteer corps and was given the rank of Hon. Lt.-Col. of the 2nd Warwickshire Volunteer Battalion. He also took a leading part in the co-ordination of fire brigades, which led to the establishment of the National Union of Fire Brigades, of which he was one of the founders. Elected to the old Rugby Board of Health in 1875, he soon took in hand the task of supplying Rugby with a plentiful supply of pure water, to the maintenance of which he paid constant attention. A few weeks before his death he was made deputy-lieutenant of the county of Warwick.

THE death is announced of Mr. Robert Winthrop Blackwell, one of the best-known pioneers of electric traction, whose name has been equally familiar in this country and in the United States during the last thirty-five years. Mr. Blackwell was born in 1858, and educated at Princeton University, where he was a contemporary of President Wilson. He afterwards practised at the American Bar, and was attracted into electrical work in 1883, when he founded the Bentley Knight Electric Railway Co., which installed an electrically operated tramway system in Cleveland, Ohio; this line, opened in 1884, was the first commercial line operated electrically. Mr. Blackwell took up his residence in this country in 1890, and founded the firm of Robert W. Blackwell and Co. in 1894. This firm secured the contract for the Bristol electric tramways in 1895, and the great success of this undertaking paved the way for many others. His name will be remembered on account of the excellent quality of the work carried out under his direction, and for the kindly assistance and advice which he was always ready to offer. He was a member of many clubs, and was in charge of most of the arrangements for looking after the American Military Mission during its visit to this country.

WE regret to note that *Engineering* for April 12 records the death of Mr. John Shanks Brodie, who since 1900 had been the borough engineer and surveyor of Blackpool. Mr. Brodie was born in 1850, and acted as engineering assistant from 1877 to 1884 to the Corporation of Liverpool. During the following sixteen years he occupied the positions of borough, harbour, and waterworks engineer at Whitehaven. Among many other improvements carried out at Blackpool under his direction are the sea-walls, designed by Mr. Brodie and executed under his direct supervision. It would be difficult to find around our coast sea-defence works carried out in a more thorough manner. Mr. Brodie was elected a member of the Institution of Civil Engineers in 1906.

ACCORDING to an announcement in the *Times* of April 6, the Royal Agricultural Society is entering upon an important development of its activities in the prosecution of agricultural experimental investigation. For several decades the society has carried on valuable work on its experimental farm at Woburn, but it is realised that many important practical problems cannot be adequately dealt with at a single centre. Members of the society are being invited, therefore, to co-operate with the view of carrying out experiments under the widely differing conditions prevailing in various parts of the country. Among the subjects for investigation referred to in the preliminary announcement are the continuous growing of corn, green manuring, unexhausted manurial value, the use of lime, the treatment of pasture, and calf-rearing. These subjects afford abundant scope for the practical investigator, but the value of the work accomplished under the scheme will depend largely upon the detailed arrangements for the planning and supervision of the work, further information concerning which will be awaited with interest.

THE report of the council of the Institution of Mining and Metallurgy for the year ended December 31 last, presented at the annual meeting held on April 11, records the increasing inclination of Government departments to turn to scientific and technical organisations for advice and assistance. The council is preparing to deal with problems of reconstruction after the war. Co-operation between the leading scientific and engineering societies has increased, the report points out, and augurs well for future developments. Substantial progress was made during 1917 in the tin and tungsten research inaugurated by the institution with the co-operation of the Royal Cornwall Polytechnic Society, and carried out under the direction of the committee of which Sir Thomas Rose is chairman. In connection with the organisation of the mineral resources of the Empire the council has done useful work in urging the establishment of a Department of Minerals and Metals. The Imperial War Conference which met in London during the spring of 1917 decided that it was desirable to establish in London an Imperial Mineral Resources Bureau, upon which should be represented Great Britain, the Dominions, India, and other parts of the Empire. The bureau should be charged with the duties of collection of information from the appropriate departments of the Governments concerned and other sources regarding the mineral resources and the metal requirements of the Empire, and of advising from time to time what action, if any, may appear desirable to enable such resources to be developed and made available to meet the metal requirements of the Empire. The committees appointed by the various Government Committees have recognised the necessity for such a central organisation, and the council awaits the final decision of the Government.

IN the issue of *Man* for April Dr. A. C. Haddon discusses the outrigger canoe of East Africa. Canoes with outriggers are confined to the Indo-Pacific area, and are absent, and so far as we can tell always have been, from the American continent and Europe. Canoes with single outriggers are unknown in Africa, while canoes with double outriggers are confined to the east coast, from Lamu to Dar-es-Salaam, to the Comoro Islands, and to the north-west coast of Madagascar. Their occurrence in this region is certainly due to a cultural drift from Indonesia, which also brought in its train a peculiar form of fish-trap. Mr. C. W. Hobley, through Mr. H. R. Montgomery, District Commissioner, East Africa, has supplied Dr. Haddon with an interesting account, furnished with numerous illustrations, of the East African type of canoe. Further information, both from East Africa and Indonesia, is required before the question of the origin of this type of canoe can be regarded as definitely settled.

AT a meeting of the Zoological Society on March 5 Mr. Tate Regan exhibited photographs of a fish with markings on the tail simulating old Arabic characters, on one side "Laillaha Illalah"—"There is no God but Allah"—and on the other "Shani Allah"—"A warning sent from Allah." The fish was sold in the market at Zanzibar for a penny; the man who bought it was going to eat it and cut off the tail, throwing it on the ground; another man picked up the tail and saw the writing; great excitement ensued, and the fish changed hands at increasing prices, until 5000 rupees was offered. Major H. R. Cartwright, Commandant of Police, had the fish preserved and sent photographs of it to the Natural History Museum, where it was identified as *Holacanthus semicirculatus*, Cuv. et Val., a widely distributed Indo-Pacific species of Chætodontidæ. Mr. Regan considered the markings as falling within the limits of normal variation of the species.

UNDER the title "Our Ill-fed Foes" the *Illustrated London News* of March 23 devotes a page to illustrations, drawn by Mr. W. B. Robinson, of some of the food substitutes used in Germany. The more thoughtful reader who will carefully examine his drawings may, however, learn many lessons which he will find distinctly beneficial in these days of rations and dear foods. We have before us also a paper written a year ago by Dr. F. A. Bather (of the Natural History Museum) in the *Putney News Letter*, advocating the use as vegetables of several of our common weeds, notably the dandelion and stinging-nettle, and sprouts of hops. The present writer can speak from experience as to the excellence of the young nettle-tops when served like spinach, and the attempt to weed the garden of dandelions is greatly stimulated by the reward of daily after-dinner coffee made from ground and well-roasted roots. Dr. Bather also recommends nettle soup, and dandelions stewed, while the latter are often eaten in salad by travellers abroad. Of the other "vegetables" depicted in the *Illustrated London News* we regard sorrel as a great delicacy; "Good King Henry" and watercress are too well known to require comment, but meadow-cress, herb Barbarea, and scurvy grass seem well worth trying, and without following the German practice of roasting the roots of "Lords and Ladies" (which are poisonous when raw), it would be very interesting to try using them for starching our shirts and collars. The German coffee substitutes shown in the diagram referred to include asparagus seeds and ground acorns; of these we are informed that the latter are often used in Switzerland; but quite a long list of other German substitutes, both for coffee and for tea, is given. Apparently hops and beech leaves form the staple substitutes for tobacco in

Germany. But in the matter of health, as well as of economy, advantages are to be gained by substituting dried coltsfoot leaves (either smoked in a pipe or made into cigars) for the more insidious narcotic. Mr. Robinson's diagrams do not include fungi, but judging from the British species, these would fill many pages of the *Illustrated London News*. Instead of pitying our "ill-fed foes," we might learn a good many interesting lessons from their dietary.

The Board of Agriculture has issued a leaflet (Food Production Leaflet, No. 34) on the canning of fruit and vegetables which should be very useful to the large number of growers and others who are desirous of preserving the largest possible quantity of fruit and vegetable food for winter use. The leaflet deals specially with the use of small canning plants suitable for domestic use by amateurs or small fruit-growers. The instructions given for every stage of the process are sufficiently detailed to ensure a reasonable prospect of success for the veriest tyro. Demonstrations are given daily at 11.30 a.m. in the Canning Kitchen, Food Production Department, 72 Victoria Street, S.W.1, and, in addition, periodical demonstrations are arranged in provincial centres. The necessary outfit of steriliser and cans can be obtained from the Department on terms which are explained in the leaflet.

A somewhat original method of reinforcing metals is described in the *Engineer* for April 12. The process has been devised by Mr. C. W. Denny, and lends itself to the manufacture of tubes and plates. It consists in reinforcing with perforated steel, of suitable thickness, weaker metals such as copper and lead. In making reinforced copper sheets, the perforated steel plate is prepared by any well-known method for electro-deposition, and, finally, copper-plated to any required thickness, the deposition of copper going right through the holes and forming a sheet of copper with the steel core inside. It is claimed that a plate so formed will stand bending and pressing without the copper leaving the steel. In some cases the copper can be rolled on hot. In producing reinforced lead plates it has been found practicable to roll or press the lead into the perforations.

Messrs. Henry Frowde and Hodder and Stoughton have in the press "The Medical and Surgical Aspects of Aviation," by H. Graeme Anderson.

Messrs. Witherby and Co. announce an important book which should be of interest to ornithologists, viz. "A Monograph of the Pheasants," by W. Beebe. The work, which is being published under the auspices of the New York Zoological Society, embodies the author's own observations and information from other sources, and will contain many coloured plates and maps; also photographs showing the pheasants of the world, their haunts, changes of plumage, nests, and eggs. There will be four volumes, the first of which is to be issued next month.

A useful catalogue (New Series, No. 82) of books of science has just been issued by Messrs. J. Wheldon and Co., 38 Great Queen Street, Kingsway, containing 1328 titles of works relating to astronomy, chemistry, electricity, engineering, mathematics, meteorology, and physics, and, in addition, particulars of sets of many scientific journals. The catalogue will be sent to any applicant for the sum of twopence.

Messrs Newton and Co., 72 Wigmore Street, W.1, are offering for sale the collection of microscope slides (some 650 in all) formed by the late Mr. Lewis Wright. A classified list, with the prices asked, will be sent by Messrs. Newton upon application.

OUR ASTRONOMICAL COLUMN.

The April Meteor Shower.—There is reason to believe that this display may be more abundant than usual at the ensuing return on about April 21. Of late years it has been very disappointing, and very few true Lyrids appear to have been seen since 1901. The radiant point is like that of the August Perseids, for it exhibits a diurnal shift of 1° to the eastward, the positions on successive nights being:—

			° °				° °
April	17	...	265+33	April	23	...	274+33
	18	...	267+33		24	...	275+33
	19	...	268+33		25	...	276+33
	20	...	270+33		26	...	278+33
	21	...	271+33		27	...	279+33
	22	...	272+33		28	...	280+33

The stream has been observed with certainty between April 16 and 26, but it has very probably a longer duration than that.

This meteoric shower has a cometary connection, for the first comet of 1861 shows a suggestive similarity of orbit, but the periodic time of revolution, either of the comet or meteoric shower, is not exactly known. There were rich displays of Lyrids in 1803, 1851, 1863, and 1884. This year moonlight will interfere somewhat with the phenomenon, as, at the time of the maximum, our satellite will be a little past the first quarter, and above the horizon until between 2h. and 3h. in the morning.

Tempel's Comet.—The following ephemerides of Tempel's first periodic comet have been constructed by Dr. A. C. D. Crommelin on three assumptions of the date of perihelion passage in 1918: (A) May 9·37; (B) May 17·37; (C) May 25·37. The ephemerides are for 9 p.m.

	A		B		C	
Date	R.A.	S. Dec.	R.A.	S. Dec.	R.A.	S. Dec.
	h. m. s.	° ′	h. m. s.	° ′	h. m. s.	° ′
April 17	16 51 18	16 30	16 32 4	14 48	16 12 36	12 55
25	16 52 6	17 9	16 31 44	15 25	16 11 4	13 26
May 3	16 50 54	17 55	16 29 20	16 3	16 7 39	14 2
11	16 47 52	18 43	16 25 5	16 48	16 2 33	14 40
19	16 43 26	19 34	16 19 41	17 36	15 56 28	15 25

Search should be made along a line through positions A, B, C, or this line produced. The values of log Δ on hypothesis B are 0·0959, 0·0749, 0·0574, 0·0440, 0·0357 for the five dates. This comet has not been seen since 1879, so there is considerable uncertainty as to its position.

Absorption and Radiation of the Solar Atmosphere.—A paper by Prof. Shin Hirayama appears under this title in the Proceedings of the Tokyo Mathematico-Physical Society, second series, vol. ix., p. 236. Utilising observations of the radiation from different parts of the solar disc which have been made by Abbot, Prof. Hirayama computes the transmission and radiation of the solar atmosphere, on Schuster's supposition that a great part of the solar radiation comes from an absorbing and radiating layer above the photosphere. It is shown that the observations are better represented in this way than by the previous calculations of Biscoe, in which the radiation of the atmosphere was not considered. The coefficient of transmission increases gradually with the wave-length, and the radiation due to the atmosphere ranges from one-third of the whole radiation for the shorter wave-lengths to nearly one-half as the wave-length increases. Assuming the effective temperature of the sun to be 6000° Abs., it is calculated that the temperature of the photosphere is about 7040°, while that of the absorbing layer is 5210°.